

Bemiss (S.M.)

CLINICAL STUDIES FROM SERVICE IN WARDS 18, 19, 20 AND
21, THE CHARITY HOSPITAL, FROM OCTOBER 1, 1875, TO
APRIL 1, 1876.

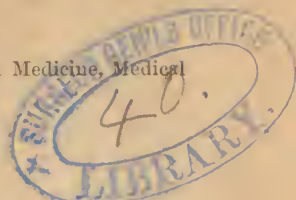
BY S. M. BEMISS, M.D.,

Professor of Theory and Practice of Medicine, and Clinical Medicine, Medical
Department, University of Louisiana.

FEVERS TREATED.

Malarial affections presented their usual large ratio to the whole number of cases treated in the wards. My case-book shows one hundred and sixty-nine cases diagnosed according to the various classifications of the malarial fevers. This is 42.25 per cent. of all examples of disease treated. The number of deaths directly referable to malarial symptoms is three, which is 5.66 per cent. of the aggregate number of deaths occurring in the wards under study. In the city of New Orleans, during the year ending December 31, 1875, there occurred 483 deaths which may be attributed to malarial symptoms. This is 7.89 per cent. of the aggregate number of deaths occurring in the whole urban population. It is to me a little surprising that such a result should obtain. While it is well understood by medical practitioners in the city that malarial attacks, distinctly recognizable by the boldness of their symptomatic phenomena, may originate in every district of the city, it is not a very frequent event that deaths occur from this cause among the favorably circumstanced of our population. It is in the suburbs chiefly, that fatal cases of malarial disease exhibit themselves. Again, it is to be remembered that this is a commercial city, and that commercial pursuits involve travel and exposure to all the causations of disease which different climates develop. There is every probability that many of the victims of malarial attacks in the private practice of the city have received the poison into their systems outside the limits of the city.

If the same ratio of mortality (1.77 per cent.) to the number of attacks, prevailed in the city, that my wards exhibited in the hospital, it would indicate that very nearly 30,000 attacks of the various forms of malarial fever had occurred during the period under consideration. I am satisfied that this computation is not correct. The sources of error are: first, that the report of the



Board of Health includes the mortality returns from the hospital, and consequently are to a certain extent affected as to results by these returns. Next, it is a reasonable inference that the death-rate of malarial cases is very much greater in private practice than in hospital practice. It is easy to perceive why this difference in results should obtain. The cases occurring outside of the hospital are for the most part in the suburbs, remote both from the physician and the apothecary. The physician is often not called until the symptoms are of the gravest character. Valuable time is thus lost in a form of disease which requires the most prompt and energetic treatment. Superadded to all these obstacles, a medical attendant has never the experienced judicious nursing a hospital affords, and is often doomed to experience the mortification of beholding his best matured plans of treatment thwarted by ignorant and inefficient efforts to put them in practice. The year 1875 was remarkable throughout the Mississippi Valley for an unusual amount of rain-fall and an unusual prevalence of malarial cases. In the city of New Orleans the aggregate depth of rain, as measured by the gauge at the Board of Health office, was 48.83 inches for the first half year, and 34.21 for the latter half. A similar meteorological condition seemed to extend over the greater part of the Mississippi Valley, and to furnish the requisites for wide-spread and intensely active evolution of swamp poison.

In previous papers upon the subject of malarious affections*, I have more than once alluded to the fact, so well known to practitioners, that certain epidemics of miasmatic fevers are liable to be marked by symptoms seldom seen, or it may be, altogether wanting in other epidemics. While as yet there has been no satisfactory explanation of the influences which occasion these changes of livery, they are still interesting subjects to be noted, for they become the salient points which call for essential modifications of treatment.

In the present paper, it is my intention to confine the remarks I shall make upon malarial affections to differences in symptomatic phenomena, whether relating to the epidemic of 1875 or to individual cases, and the modes of treatment which I have found most efficient in combatting the morbid states which these various groups of symptoms represent.

Two pathological changes were so common to the malarious attacks presented during last winter's term of hospital service,

* N. O. Medical and Surgical Journal, New Series, July, 1873.

attacks presented during last winter's term of hospital service, as to have formed a topic of almost daily study and comment. These were a degree of anæmia altogether unusual, both as it respects commonness to the aggregate number of cases, and as it respects the profound degree of blood changes often attending its presence; and splenic enlargements. Many patients entered the wards whose "tallow skins" and bloodless tongues revealed at a first glimpse the almost utter devastation wrought upon the vital fluid. In a large majority of these typical cases of anæmia, effusions were found to have occurred into the areolar tissues—generally of the lower extremities, often of the face—sometimes in the lungs to a degree sufficient to give rise to limited œdema, and not at all uncommonly a greater or less amount of ascites was found to be present. Under these circumstances it was quite natural that the appropriateness of the new nosological epithet, "pernicious anæmia," should become a subject of discussion. Certainly, while in the presence of one of those worst examples of blood deterioration and anæmia produced by the swamp poison, the observer is forced to confess that the adjective is applicable to the case even when used in its most intensive sense. A simple exsanguinated state of the system, carried to the extent that serious lesions of secretory functions result, is in itself a condition of perniciousness, since the continuance of these functions is vital in the sense of being essential to life. But the anæmia of malarial intoxication has a quality of perniciousness superadded to that of mere exsanguination, because it is associated with a positive blood iniquation, due to the presence of the primary, or some secondary poison in a fluid which has also undergone structural lesions. These considerations help us to apprehend the difficulties in our pathway, when we undertake to cure the anæmia of malarial disease. We have not only on the one hand to endeavor to restore the blood to a healthy state as it concerns its own normal constitution, but in the mean while we have continually to guard the patient lest his incompetent circulatory fluid—incapable of relieving his system of waste material through the usual emunctories—should undergo further deterioration from effete accumulations.

There is yet another point to be vigilantly observed, which is, to protect the patient as much as may be in our power, against malarial paroxysms. We are somewhat prepared to understand that a well-marked malarial paroxysm shall involve anæmic

changes, through the circulatory remora of the first stage—through the abnormal temperature of the second stage, and through the excessive function of the sweat glands of the third stage. But my experience has on more than one occasion taught me, that an almost undiscernible approach to a paroxysm is capable of increasing in a very obvious manner the patient's anæmia. I think this statement applies with more certainty to those instances in which the paroxysmal phenomena are attended by marked elevation of temperature, and formerly I believed that the damage was due to this cause. Later observations indicate that similar, if not equal results, follow paroxysmal returns where elevation of temperature is so slight that an appeal to the thermometer is necessary to determine the question. Perhaps, after all, the most reasonable explanation may be found in the assumption, that lesions of nutritive changes throughout the whole system, belong essentially to the assemblage of disturbances of nerve function attendant upon the malarial paroxysm.

In accordance with the ideas of pathology as just announced, we may formulate the indications for treatment under three propositions:

1. To restore a normal constituency to the blood.
2. To rid it of impurities, secondarily accumulating in it.
3. To ward off malarial paroxysms.

The first indication mentioned, suggests chalybeates as the remedies best suited to the physician's purposes. I do not wish to under-estimate their great value. But when I recall the large number of cases in which their use has, in my hands, failed to cure, together with a small number in which their exhibition was not tolerated, I feel obliged to enter a protest against their indiscriminate employment. The forms of iron from which most benefit has been obtained are mentioned very nearly in the order of their estimated value.

Iron by Hydrogen. I prescribe this preparation in my hospital practice more frequently than any other chalybeate. A combination from which great benefit is often obtained is: R—Reduced iron; sulphate quinine (or sulphate cinchonidia), aa ʒss.; arsenious acid, gr. j. Make xv. pills. S. One twice or thrice daily, given at times of taking food. Occasionally, with a view to combat unusual nerve exhaustion, the arsenic was omitted, and extract nux vomica, or strychnia, was substituted, the former in doses of gr. ss. to gr. j. to pill, the latter one-thirtieth grain to pill.

Citrate of Iron and Quinine. This was generally prescribed in solution of ℥j. to ʒss. in infusion of gentian, ʒiv. S. One tablespoonful twice to thrice daily. Sometimes ʒj. tinct. nux vomica was added to this solution. The dose is exceedingly bitter, and often not well borne, but in many cases its benefits are striking.

Tinct. Ferri. Chloridi. was often exhibited in doses varying from fifteen drops to half a drachm. In truth the most usual mode of prescribing was to order an ounce mixture containing equal parts of tincture of iron and simple syrup, and direct a teaspoonful in water twice or thrice daily. It sometimes occurred that I made solutions of quinine by means of the tincture of iron, and found the combination a valuable one. The prescription commonly used was sulph. quinine ℥j., mur. tinct. iron ʒij., cinnamon water ʒvj. ꝑp. & Sol. S. Teaspoonful every 6 to 8 hours mixed in sweetened water.

Wine of Iron was often prescribed, and not uncommonly the solution of arseniate potash was added in suitable proportions.

Ammonio-Sulphate of Iron, and Quinine, made into a solution by the addition of dilute sulphuric acid, was exhibited principally to those patients whose cases showed greater than usual tendency to serous effusion. The formula was: R—Ammonio-sulph. iron, ℥ij.; sulph. quinine, ℥j.; dilute sulph. acid, ʒi.; cinnamon water, ʒvj. M S. Teaspoonful in sweetened water twice daily. When indicated, strychnia may be added to this prescription.

Iron alone is not a cure for malarial anæmia. It is probable that the agency it exerts in effecting such cures is far more inconsiderable than is generally reckoned. While the physician should not fail to employ it when called for, he should not fall into the error of assigning to it a role quite beyond its sphere of capabilities. It is known to be capable of adding a missing constituent in retrograde lesions of the red corpuscles, but to effect this, it is necessary that certain not well-understood conditions should obtain which are essential for its absorption and specific appropriation. It is probable that these conditions are quite as often absent as present. Admitting that every condition and circumstance shall concur to favor the administration of iron, there is no doubt that other elements of nutrition are required to coöperate with it in the blood-renewing process, before its therapeutic value can be made manifest. The alimentation of anæmic malarial patients is with me a most important consider-

ation. They should be liberally supplied with carefully selected and well prepared animal food, to which such vegetables and fruits may be added as are regarded suitable to their condition. Digestion may be aided by acid solutions of pepsine, or by mineral acids diluted in some bitter infusion. In my hospital wards the latter are more frequently used, and by preference, the nitro-hydrochloric or the nitric alone. The list of promoters of digestion is incomplete if we omit to mention alcoholic drinks, or for many patients coffee and tea. A very common prescription in my practice is the following: R—Compound tinct. cinchona, ℥iv. S. Dessert spoonful in water after each meal. Whenever considered indicated, from five to eight drops of nitro-muriatic acid were added to each dose. Alcohol may also be given in the form of wine or beer. To a few anæmic patients I have recently given a table-spoonful of Trommer's extract of malt after each meal, and have added to it, after mixing it with water, either pepsin, the mineral acids, or a small amount of whiskey, or all of them together. The prescription is worthy of further trial. It is needless to say that pure air, and such exercise as the patient is able to endure, are matters essential to his improvement.

The second indication includes measures of treatment so often called for, that the medical attendant should constantly observe for the presence of symptoms justifying a resort to them. These symptoms are a coated tongue, with vitiation of the sense of taste; a muddy skin; cephalalgia, or vertigo; slight feverishness, and urine for the most part highly colored and heavy. These symptoms contra-indicate the employment of analeptic remedies. Eliminants and alteratives should be appealed to. It is true that I have occasionally adopted a compromise method of treatment, which looked to the association of restorative and eliminant medication. The prescription generally employed for this purpose is: R—Sulph. magnes. ʒj. to ʒij; sulphate iron, ʒij; sulphuric acid, dilute, ʒj; syrup orange peel, ʒvij; water to ʒvj. M S. Table-spoonful in water twice daily. I hold it to be a wiser and more satisfactory mode of practice to direct our energies to the removal of mischievous materials whose accumulations obstruct function. Mercurials are our most efficient remedies. In hospital I usually prescribe the mild chloride. From one to five grains are given, generally in powder combined, with bicarb. soda and white sugar, or with the soda alone. These small doses are repeated, at intervals vary-

ing from four to forty-eight hours, according to the urgency of the case. In certain cases it is desirable to avoid the nausea and free catharsis liable to be produced by calomel and soda. A very efficient as well as mild mercurial dose will be found in the combination of three grains severally of blue mass, comp. ext. colocy., and castile soap: make two pills and give at one dose. It is by no means infrequently the case that a lenteric state of the bowels requires the combination of opiates with the mercurial which may be indicated. Under these circumstances the following prescription answers a most valuable purpose: R—Blue mass, pulv. rhubarb, aa gr. x.; sub-nitr. bismuth, ℥i.; morphia, gr. j.: make ten pills. S. One each night; or, twice or thrice daily. Again, in certain inveterate cases of malarial intoxication with anæmia, I have found this prescription useful: R—Bichloride mercury, gr. ss. to gr. j.; comp. tinet. cinchon., ℥iv. Dessert-spoonful twice daily—after meals and largely diluted with water.

In a few cases, more especially of young persons, adenitis, or some suspicions of scrofulous taint, have induced the exhibition of iod. pot. and the bichloride in combination. An eligible prescription may be made by dissolving them in desired proportions in a menstruum consisting of syrup pyrophosphate of iron and pure water.

I am free to confess that, although I have prescribed chloride of ammonium for a number of years, and to many patients, I am quite unable to single out those symptoms or conditions of disease in which its use is most likely to prove of service. It is to be admitted, however, that remarkable benefits sometimes follow its use.

The third indication is best subserved by the preparations of cinchona. These may be given habitually, as for example, from three to five grains of quinine in one or two ounces of black coffee, morning and evening. In case the patient is sufficiently intelligent to note the prodromes of a paroxysm, and I may add, fortunate enough to have his paroxysms attended with prodromes, the exhibition of the drug may be deferred until the patient is warned of the approach of a paroxysm, when it should be given in positive quantity and in solution.

Splenic Enlargement, in its association with malarial intoxication, is an interesting subject to the physician. It is an easy matter for the medical observer to satisfy himself that splenic

enlargement, to a greater or less extent, attends malarial paroxysms. It is so unexceptionable in its occurrence, that when not present we may attribute its absence to a firm, unyielding capsule. The greater capsular elasticity may also explain why chronic enlargements of the spleen more certainly attend malarial toxæmia of early life than those of adults. But while admitting the influence of a paroxysm in mechanically distending the spleen, and admitting also, that a frequent repetition of this cause may set up an actual new growth, or true hypertrophy, there is still ground for the belief that chronic malarial intoxication, without paroxysmal manifestations, is capable of producing a similar result. Hertz writes: "The very evident and almost constant way in which the spleen is involved in intermittent fever, suggests the idea that the two are very nearly related. With our present knowledge we can no longer attribute the swelling of the spleen to an over-filling of the organ with blood during a chill alone, as it may attain to the very largest size in chronic infection without chills." (Ziemssen's *Cyclopædia*, Vol. II., p. 265.) According to either of these views, when endemic or epidemic prevalence of malaria is attended with an unusual number of cases of splenic enlargement, it indicates longer exposure to the poison rather than intensity of toxic action. It is not at all improbable that the climatic conditions of the Mississippi valley during 1875 were so continuously favorable to the evolution of the swamp miasm, that a more perpetual dosing (so to speak) of persons exposed, was the consequence.

However we may differ in respect to the mode of production of splenic enlargement, there can be but little question in regard to its troublesome influence when a complication of malarial anæmia is present. Serous effusions are more common events under such a complication, and aside from their occurrence, the anæmic state—the destruction of ratio between the red and white corpuscles, is more hopeless of cure. Close clinical observation may show that these remarks are more especially true in instances where the enlargement is a genuine hypertrophy, and thus establish a relation between such cases and the leucocythemias of Bennett, or splenic anæmia of Wagner. At present I am unable to make this distinction.

None of the cases of enlarged spleen required any treatment to be addressed to inflammatory states of the organ. Well-marked splenitis is, under my observation, an unusual event. I

have, however, seen two cases of abscess of the spleen occurring in chronic malarial disease. One was after a very long horse-back ride by a man unaccustomed to such exercise. On the other hand, the capsule is often the seat of inflammation to such an extent as to roughen its surface, giving rise to such illustrative examples of friction murmur that I am in the habit of auscultating all very large spleens to determine if it be present.

I know of no treatment having any specific influence in reducing an enlarged spleen. The treatment previously advised for the cure of anemia, is as effectual for its cure as any treatment by drugs known to me. I have repeatedly tried Maclean's ointment of biniodide of mercury, as suggested in Reynold's System of Medicine (Vol. I. p. 68), but I am unable to report an instance in which benefit resulted from its use. In the meantime, both my own experience and the teachings of the older authors lead me to believe that constipation, and its attendant visceral engorgements, should be very carefully avoided. A daily dose or two of the solution of sulphate magnesia and iron mentioned on a previous page is an excellent prescription. Sending the patient, whenever possible to do so, out of a malarial region, is a wiser course to pursue. In the meantime it is proper to be mentioned, that, even in those cases where the enlargement appeared to be an unquestionable hyperplasy, a striking degree of diminution in size would accompany and follow convalescence from the malarial cachexia. The lesson to be derived is important clinically, since we are able to assure those unfortunate patients to whom immense spleens are an incumbrance and source of mortification, that they may at least hope for some reduction of volume.

Simple Intermittents. The number of simple intermittents admitted in my wards was 147; about 87 per cent. of the whole number of malarial cases treated. It is not my intention to occupy any portion of the space at my command with remarks concerning the symptoms, or treatment of the simple intermittents under observation. Nothing new or valuable would be revealed by such a history. In my remarks upon the cases of remittent fever admitted for treatment I shall, by way of comparison, place in juxtaposition records of temperature of both simple and pernicious intermittents, and remittent cases.

Pernicious Malarial Attacks. These attacks are matters of

the most serious concern to the practitioner, since the exercise of all his energies and of his highest skill is requisite to avert fatal results. They are also full of intense interest as points of abstract scientific study, since they involve many abstruse questions of pathology. The term "*pernicious*" is not limited to some one form of malarial diseases, but includes all those cases which are attended by the quality of "*perniciousness*," or unusual gravity, or which are more than usually injurious, or hurtful to life. This element of danger, possessed in such a notable degree by pernicious malarial attacks, is a marked point of distinction between them and simple intermittents. Simple intermittents are never fatal except through some complication; the pernicious cases are accompanied by frightful mortality. As an abstract nosological classification the distinction is easily drawn; at the bedside, it is often a more difficult matter than the bold contrast just presented would indicate. This difficulty of diagnosis arises from the fact that the mode in which pernicious attacks destroy life is by an exaggeration of some symptom, stage, or pathological state, normally connected with the simple forms of malarial disease. For example: it is well understood that more or less congestion of organs in the shut cavities attends all simple intermittents, but an exaggeration of the congestion to a dangerous degree converts the simple intermittent into a pernicious case. Exaggeration of the cold stage is a common cause of perniciousness. Again, it is true that the presence of the swamp poison in the blood interferes with its chemical and metamorphic changes, and in this manner occasions the accumulation of secondary poisons in that fluid. Ordinarily this does not reach a limit which is at all inconsistent with the performance of vital functions. An aggravation of this condition so as to approach, or pass this limit, transfers the case to the class of pernicious.

Hemorrhage in any considerable amount and from a deeply-situated surface, is always a grave complication of fevers, and its occurrence at once places the case within the classification of pernicious. The symptoms and conditions which, in accordance with these illustrative examples, characterize perniciousness as connected with malarial attacks, afford a division of pernicious cases, quite true to nature, into three forms.

1st. *The algid, or congestive form*, in which the perniciousness is due to an aggravation of the cold stage, or to dangerous congestion of some important viscus.

2d. *The comatose form*, in which the perniciousness is due to a state of blood impurity sufficient to impair, or destroy its nutritive functions.

3d. *The hemorrhagic form*, in which the perniciousness is due, first, to the hemorrhagic diathesis present; second, to the localization of the bleeding—often occurring at points where extravasated blood produces dangerous lesions and obstructions of function; third, and least often, to the amount of blood lost to the system by the hemorrhage.

This classification does not include the diaphoretic, or sweating form, nor the ardent or intensely inflammatory form. It must be a rare event—in this country, at least—that the sweating stage of a malarial fever is exaggerated to such a degree as to place life in danger, while it is well understood that unusual elevations of temperature call for the physician's ministrations, whatever may be their cause or the conditions of their occurrence.

Five cases of pernicious malarial fever were admitted to the hospital under my charge during my term of service. These were classed as follows: congestive, 1; died, 1; comatose, 3; died, 1; hemorrhagic, 1—recovered.

Case of Congestive Chill. Nicholas Della, aged 16 years, by profession a hotel waiter, was brought to the hospital on the third of February. No history was procured, except that he had been unconscious since the preceding day, and that he had been spending some months in a very unhealthy place near the lake shore. The assistant house surgeon, Dr. G. W. Lewis, prescribed ʒss. bromide potash in enema to be repeated in two hours. The next morning, when I saw the patient he was entirely unconscious; all efforts to arouse him or induce deglutition unsuccessful; pulse irregular, and feeble; skin bluish, moist with perspiration, but not cool; pupils a little dilated, but correspond in movements; sensibility to light diminished; no paralysis; urine passed in bed; no stools. A scruple of quinine made into a solution with dilute sulphuric acid, and twenty drops tinct. opium, were given in two ounces of flaxseed emulsion as an injection. During the day two injections were given, each consisting of ʒj. of water, ʒj. bromide potash, and twenty drops of laudanum. The quinine was repeated at night, and again on the morning of the 5th.

The patient died during the night of the 5th. An autopsy was not permitted.

This is an illustrative case of the algid form of pernicious malarial fever, in which a partial reaction has occurred. Congestion, however produced, may destroy life either through its sheer physical force in arresting function by infarction, or through the inevitable consequences which arrested circulation entails upon the blood. It is highly probable that the latter mode of producing death more often prevails. Separation of blood constituents due to its stasis, entails as results the formation of coagula in the congested vessels, the deposit of pigmentary matter, and a general damage to function proportionate to the lesions inflicted upon nutrition. Where death occurs as long after the chill as in this instance, it is reasonable to suppose that it is due to some condition included in the latter class of causes.

The cure of a congestive chill is one of the most difficult problems the physician can possibly encounter. It is nothing less than a proposition to cure an altered mechanism of the system supposed to be dependent upon some influence exercised over a nervous apparatus, whose therapeutics or experimental physiology are illy understood. While a satisfactory solution of this problem is probably a remote achievement in medicine, it was long ago empirically ascertained that certain agents exercised some degree of control over the cold stage of febrile attacks. For the most part these agents are addressed to the nerve element in the pathology of a chill, and are identically the same remedies which we use to allay other forms of nerve irritation. Opium, chloroform, belladonna, chloral hydrate, and bromide potash, have proved more or less valuable according to the idiosyncrasy of the patient or the circumstances under which they were used. I consider opium the most valuable of these agents, and nearly always combine it with such other drug as I may select as an adjuvant. It is better to use it in moderate doses, and repeat these at short intervals. Twenty drops of laudanum with half a teaspoonful of chloroform is an efficient prescription. One-sixth of a grain of morphia with one-fortieth of a grain of atropia may be injected subcutaneously. Nitrite of amyl is highly recommended upon another page of this issue of the JOURNAL. I have never used it, but have no question in regard to its value. These remedies may be used at any stage of the chill without fear of prejudicing the subsequent career of the case. It is true,

however, that expectations of abridging the congestive stage must vary with the length of time the chill has endured before the remedies have been applied. Frictioning the extremities, and indeed the whole surface with ice, is another mode of practice which I have never used, but which is well worthy of attention and trial. In the event of inability to procure ice, douches of cold water, followed by frictions with coarse towels, may be substituted. The value of the hypodermic syringe in congestive chills must not be lost sight of. The suspension, or even reversal of normal systemic currents, is made evident by the serous vomiting and purging attending congestion of the abdominal cavity. Medicine placed in the stomach under these circumstances is virtually thrown away. It does not reach the circulation.

Comatose Cases. Case 1.—Bernard A. Hagan, a laborer, 35 years of age, was brought into ward 21, December 29th, in an insensible condition. At time of admission his temperature was 103°. Dr. Lewis ordered ʒss. of quinine by enema. Morning of 30th still unconscious, but able to swallow fluids placed upon the base of the tongue; urine and stools passed in bed; skin of a muddy yellowish hue; temperature 100.2°; pulse 120; respirations 33. A scruple of quinine in solution was given immediately, and during the day carbonate of ammonia in five grain doses, was alternated with the same quantity of quinine every fourth hour. A liberal quantity of milk, concentrated beef-essence, and milk punch was given, both by mouth and rectum. Evening temperature 103.1°. December 31st.—But little change in patient's condition; temperature 100.3°; pulse 130; bowels and bladder voided in the bed; continue treatment. Evening temperature 103.2°. January 1st.—Morning temperature 102.3°; pulse 130; respirations 42. Death during the day.

Case 2.—Charles Lacrosse, fisherman, aged 44; brought into ward 20 in an insensible condition, November 18th. Temperature at time of admission 104.8°; pulse 120; respirations 40; able to swallow liquids placed far back in his mouth. Ordered ʒij. of quinine in solution, ten grains to be given every fourth hour. Nov. 19th.—Patient has taken and retained all the quinine ordered, is perspiring profusely; temperature 97.8°, pulse 88; more conscious; takes food and water when offered him. Ordered blue mass, comp. extr. colocy., aa gr. v. Make two pills; take at once; to drink through the day bitartrate potash ʒj.,

dissolved in lemonade, until the bowels are moved. Evening temperature 99.3°. November 20th.—Temperature 98°; patient placed under convalescent treatment; discharged from hospital November 29th.

A third comatose patient was admitted to ward 19 on the 29th of October, entirely insensible. He was treated by large doses of quinine in solution per rectum, and by calomel xx gr., bicarb. soda gr. v., placed in the fauces and a tablespoonful of water trickled over it.

As the patient began to improve, it was discovered that his right arm was paralyzed. A history subsequently obtained showed that the patient was an engineer, and had been engaged in making some land surveys in a swampy portion of the State, and had been often obliged to wade or swim across the bayous, and to sleep at night in the open air, sometimes without any protection from the weather. He had previously enjoyed good health, and was altogether unable to account for the paralysis of his arm. During convalescence he was treated by iron, strychnia, and the preparations of cinchona, and by cold douches, and frictions to the paralyzed arm. Convalescence was slow, but he was discharged completely recovered on the 20th of November. It would appear that Romberg's instructive apothegm, that "neuralgia is the prayer of the nerve for healthy blood," may be properly extended to include cases of paralysis also.

It is not necessary to make further remarks regarding the "comatose" form of malarious disease. In typical cases the differential diagnosis between the congestive form and this, is made without difficulty. In congestive chill the surface is cold, blue, or livid, the pupils dilated, the pulse generally slower than natural and irregular. In the comatose form the surface is preternaturally warm, of a muddy, semi-jaundiced hue, the pulse and temperature both indicating the feverish rather than the algid state. In congestion, impeded function associates itself with the above mentioned symptoms, and unerringly shows not only its presence but which one of the shut cavities is the seat of the congestion.

I have seldom lectured to students upon the subject of congestive fevers, or congestions, without feeling it my duty to admonish them against the employment of the term in that indefinite and inconsiderate manner which has become common among some of our profession. If the death certificates which

were sent in to the Board of Health of this city, in 1875, were based upon correct diagnoses, it would indicate that one person in every 1088 of the population living in New Orleans died of some form of congestion during that year. Is any one prepared to believe that this represents a truth? If the term is abused at all, it is more often in respect to its use in accounting for mortality from brain symptoms. In New Orleans, in 1875, 117 deaths are returned as having been due to congestion of the brain. This is 1.90 per cent. of the whole mortality of the city, and one death from this cause in every 1794 persons living in the city. In New York city, in 1873, 167 deaths are ascribed to congestion of the brain—.57 per cent. of total mortality, and one in every 5988 of the living population. According to these figures, the danger of death from congestion of the brain is more than threefold greater in New Orleans than in New York. Observation teaches me that such is not the case.

Hemorrhagic Malarial Attack. The only case treated was an Irish laborer, 44 years of age, admitted to ward 18 on the 26th of October, with malarial hæmaturia. No notes of the case are preserved, but the patient was discharged, cured, on the 6th day of December.

In this, as in all grave forms of malarial disease, the leading indication is the production of early and decided cinchonism. After this, the most important question is, how the hemorrhage is to be treated? In my observation it has seldom been so considerable as even to jeopardize the life of the patient by the amount of blood abstracted from the circulation. We might therefore dismiss the hemorrhage from among those symptoms calling for special remedies if it were poured out upon a free surface only, and escaped at once from the system. But this is not the case; it is liable to accumulate in the kidneys, impeding or destroying function, perhaps by physical pressure upon the vascular supply of these organs. It is therefore a symptom of the most serious concern when viewed in this connection. Recent observations have satisfied me that hæmostatics often afford valuable aid in curing renal hemorrhage in malarial disorders. To give them every opportunity for beneficial effect, they should be resorted to at the earliest practicable moment, before serious damage has been produced by extravasated blood. Turpentine, ergot, gallic acid, the astringent salts of

iron, or mineral acids, may be employed in accordance with the practitioner's estimate of especial applicability to the case or his convenience. Some of the best practitioners in the South have expressed perfect satisfaction with the action of turpentine. The revulsive effect over the circulation from the application of cups over the loins must not be lost sight of.

Remittent Fever. Seven cases of remittent fever were treated, all of which recovered. The thermometer, or generally the unaided senses of the physician, are sufficient to establish the differential diagnosis between remittent and intermittent fever. This difference, as it regards the febrile march in the two forms of fever, is the salient point of varying indications respecting treatment. In intermittents, febrile movement is for the most part a very unimportant event; in remittent attacks, the fatal result is often to be attributed to excessive elevations of temperature.

Case.—Robert Lesley, 24 years of age, was admitted to ward 18, bed 265, on the 9th of February. The attendants who brought him to the hospital stated that he had been attacked with fever three days before admission. When the patient was first seen (February 10th), he presented the suffusion of face and eyes so illustrative of this form of fever. His tongue was dry and covered in the middle with a brown coat; abdomen tumid and tympanitic. Attendants state that he has been freely purged by cathartics taken without medical advice. He was so delirious and restless that a nurse was constantly required to keep him in his bed. Morning temperature 103°; evening temperature 104.8°. Ordered quinine ℥j., blue mass gr. vj, pul. opium gr. j. Make 6 pills: two every third hour until all are taken. February 11th.—Patient had short snatches of sleep through the night; still delirious, but calls for drinks; had two liquid stools; passed urine; temperature 102.2°; evening temperature 103.1°. Ordered teaspoonful of the house solution of quinine every fourth hour; cloths wrung from hot water to be applied over abdomen. Diet of milk, milk punch, and beef soup, ice and iced drinks to be given often.

12th.—Patient has slept rather more during the night; is less delirious; temperature 102°; pulse 100. Ordered solution acetate ammonia, ℥iiss; spts. nitre, syrup morphia, aa ʒij. Mix. Tablespoonful every fourth hour; to be omitted during night.

13th.—Condition same; morning temperature 102°; evening, 102.8°. Continue treatment and diet.

14th.—Morning temperature 102°; evening, 102.2°; pulse 100. Patient more rational.

15th.—Patient slept quietly for several hours; had free perspiration. Morning temperature 99.3°; pulse 80; evening temperature 102.1°. Ordered house solution of quinine, teaspoonful every fourth hour during day.

16th.—Morning temperature 99.2°; evening temperature 102.6°. Continue quinine.

17th.—Morning temperature 99°; evening temperature 103°. Continue treatment.

18th.—Morning temperature 99°; evening temperature 100°. Patient had profuse perspiration during night; is now convalescing. Ordered $\text{zij. comp. tinct. cincho.}$ every fourth hour.

19th to 21st.—Temperature oscillated between 99° and 100°, but on the evening of the 21st suddenly mounted to 102.1°. Two teaspoonfuls of the house solution were given, and on the morning of the 22d the temperature was normal. From this period until the 27th, the morning temperature of the patient varied but little from the normal standard, while the evening temperature was extremely variable, reaching on the 24th 102°; 25th, 101°; 26th, 100.5°; 27th, 101°; after which records of temperature were no longer kept. The patient was discharged from hospital March 29th.

The above resumé has several instructive points connected with it. First, the patient came under observation after having been submitted to improper attempts at cure by purgatives prescribed by unprofessional persons. In my opinion this is one of the most serious complications which physicians encounter in treating remittent fever. Popular prejudice and usage both agree in instituting this mode of practice before the physician is called. One of the tendencies which remittent fever possesses to a degree far beyond other forms of malarial fever, is to set up local inflammations. The liability of the alimentary canal to become the seat of these inflammatory disturbances, is a fact sufficiently well known to have become the foundation of a special school of pathology. Surely, arguments and cases concur in teaching that excessive purgation complicates the career of the disease: 1st, by producing irritation and inflammation which it is probable that the patient might otherwise escape;

2d, by interfering with nutrition in a disease which runs a prolonged course. Again, there is an instructive item to be gained from this case by observing the cooling of the body during a sweating stage. On the evening of the ninth day of the disease the temperature was 102.2° ; the next morning it had fallen to 99.3° , or very nearly 3 degrees.

In treating remittent fever, I make it an invariable rule to increase the quantity of quinine largely above the amounts prescribed for intermittents. From one to two, or even three scruples should be given, preferably in solution, but I often give it in pill form, combined with calomel or blue mass. I need not advert to the happy manner in which this drug acts in a large number of remittent cases, as an apyretic to cut short the fever present when its administration was begun, and as an antiperiodic to prevent its recurrence. These are among the marvelous and beautiful results therapeutics is sometimes able to exhibit. But it is equally well known that in a certain proportion of cases, very small benefit, or it may be, no appreciable degree of benefit follows the administration of the drug. Under these circumstances my practice is to suspend the use of quinine, and to practice only such medication as may be best calculated to allay fever and quiet the patient. Solutions of acetate ammonia, or acetate potash, with small opiates either in combination or separately, cold and cooling drinks; if vomiting is troublesome, effervescing drinks, competent doses of opium or chloral, or bromide potash given at night to relieve insomnia if present, constitute all the medication I regard as admissible. The patient's room should be well ventilated, his hair cut close, his surface frequently sponged with tepid water, his bedding and clothing changed often, and all his surroundings rendered cheerful and quiet. The question of diet is an important one. From the inception of the case, the physician should keep in view the fact that the febrile process involves waste and decay. The wear and tear of the economy consequent upon seven or eight days' persistent elevation of temperature, must be provided for by timely and proper attention to diet.

After a few days of careful watching and patient persistence in the course suggested, the abatement of temperature to a lower figure than it had previously reached, or sharper angles of oscillation than the lines had previously shown on the diagram, will indicate the arrival of a period in the disease, when another attempt should be made to control it by antiperiodics.

Hemorrhage in remittent fever is an event generally to be deprecated. In a majority of cases the alimentary canal affords the surface from which it occurs. I have seen more than one case of intestinal hemorrhage prove rapidly fatal. I do not pretend to be able to explain its mode of production. It is, however, reasonable to infer that a true hemorrhagic diathesis is brought about by the changes of fluids and solids usually producing it, and that intestinal irritation and inflammation determine its point of occurrence. However we may reason about these points, I can testify to its occurrence in cases which did not present the slightest evidence of the presence of typhoid fever poison, unless the hemorrhage may be claimed as such.

Typhoid Fever. No one will dispute the assertion that this is the most pandemic of all the essential fevers. It is, however, true that New Orleans is generally more exempt from its presence than many other large centres of population in the United States. During the nine years extending from 1867 to 1875 inclusive, the returns made to the Board of Health show that 677 deaths have been attributed to typhoid fever. Murchison found that in an aggregate of over 18,000 cases the mortality rate was one in 5.4. If the same rate of mortality should apply to cases of the disease in this city, it would indicate the occurrence of 3655 cases of typhoid fever during the period mentioned. The proposition which is capable of being deduced is, that of 210,000 people living in New Orleans for nine consecutive years, one in every 57.4 will suffer from typhoid fever, and one in every 310 will die from this cause. If the population of New York be estimated at 1,000,000 for the nine years, 1865 to 1873 inclusive, and be tried for that period by the same comparisons and rates of number of cases, with number of deaths to the population, it will be found that one person in each 53.5 would suffer an attack of typhoid fever, and one in every 289.3 would die of that disease.

Whatever these figures may be understood to prove, the fact must be admitted that typhoid fever has never prevailed as a general or fatal epidemic in this city, nor has it been a common thing in my terms of service to have over two or three cases to treat during a winter's course. Prof. Chaillé's carefully studied statistics show that under the various classifications, "Typhoid," "Continued," "Enteric," and "Fever," 1262 cases were admitted to

Charity Hospital during the ten years 1856-1860, and 1866-1870. Of this number 440 died and 822 were discharged. If it were possible to eliminate the malarial fevers and other cases not really typhoid fever, it is very probable that the numbers would be reduced to one-half this present scale.

In regard to the origin and mode of spread of typhoid fever in the city and hospital, I know of no definite facts which will aid the enquirer in the solution of the various unsettled questions connected with this subject. Under my observation the disease has never communicated itself to any medical, or hospital attendant, or any patient exposed to it in the wards. No disinfecting measures have been resorted to beyond the usual cleanliness and good ventilation of the wards. Quite a number of the patients treated during my nine years of service have arrived in the city sick with the disease. Others have been brought in from various portions of the city who must have acquired the disease germs here. If we adopt Budd's theory, strongly supported by Leibermester, that typhoid fever is insusceptible of *de novo* origin by any amount, or conditions of animal excreta or filth, without the presence of a germ derived from a pre-existent case, the difficulty of accounting for the appearance of the disease becomes in many instances absolutely insurmountable. It is true that Murchison's recent discoveries have taught us that milk—a food so important and universal in its use—may prove a vehicle of transmission of the special poison of the disease. We are not able to affirm that the butter and cheese which we import so largely are not liable to similar poisonous impregnations; but these are unproved hypotheses, which should have but little weight in scientific debate. Country villages, or isolated rural habitations, afford the best opportunities for studying the origin and mode of spread of infectious diseases. I am satisfied that a large number of practitioners situated where they are able to turn these opportunities to good account, will agree with me in considering Murchison's doctrines more consistent with their observations than the one which we have just quoted from Dr. Budd. These doctrines hold that the disease germs of typhoid fever may be generated anew from the accumulation of organic material and filth derived from human bodies. It is not inconsistent with this theory, to grant that certain attendant conditions are necessary to confer upon these collections of ordure capability to breed typhoid fever. It may be further

admitted, that these qualifying conditions are unknown, and that they rarely coincide in such a measure as to evolve the fatal germ, without yet overthrowing the theory that the poison is not dependent upon the introduction of a specific product of some other typhoid case for its renewed development. These questions are extremely important to the practitioner. His measures of prophylaxis are to some extent varied, accordingly as he may be governed by one or the other of these opinions. My reference to the opportunities afforded physicians situated in isolated localities for the study of this subject, is explained by an avowal on my part, that the observations made during that part of my professional life which was spent in country practice, have led me to adopt Murchison's opinions. Cases, time and again, occurred in my practice, which could not be accounted for upon any other hypothesis.

The infectious nature of typhoid fever is an indisputable truth. Whatever opinions may be entertained in regard to the mode of production of the disease germs primarily, they undergo multiplication in the bodies of the sick, and being thrown off, are capable of poisoning the well. In October, 1847, while practising in the town of Bloomfield, Ky., two students were brought to their homes from St. Mary's College, which had been suspended in consequence of a fatal outbreak of typhoid fever. A few days after their arrival both sickened with typhoid fever, and only recovered after severe and tedious illness. These two patients formed the foci of an epidemic which was so general that I treated 176 cases, from the time of the outbreak until the ensuing June. The attendants and families of the young students were the first to suffer attacks of the disease, then it became general in its prevalence in the village and its environs. The topography of the district where this epidemic prevailed, supports a belief that the disease germs reached the systems of the well principally through the drinking water. The water supply was obtained wholly from wells and natural fountains, and the dejections were generally emptied upon the surface of the soil in such positions, that they might readily reach the drinking water either by surface washing or percolation.

With respect to many of the towns in this country, it may be safely asserted that it appears as if they had been located and constructed, with the special design of affording the best facilities for the spread of those diseases which are propagated chiefly, or in part, by ingestion of their germs.

I have had no wards in Charity Hospital to which colored people are assigned, but my own observation and studies induce a belief that negroes are more liable to attacks of typhoid fever than whites. They are certainly less able to endure attacks of the disease than the whites are. I gave this subject pretty careful study in 1861, in reference more particularly to the influence the disease exerted upon the mortality rates of the two races in Kentucky. In 1858, of every

100 whites who died in Kentucky,	5.44	died of typhoid fever.
100 negroes " " "	7.03	" " " "

1859.

100 whites who died in Kentucky,	7.26	died of typhoid fever.
100 negroes " " "	10.25	" " " "

In South Carolina, during the three years 1857, 1858 and 1859, a somewhat different result is obtained :

Of 100 whites dying in 3 years,	9.78	died of typhoid fever.
Of 100 negroes " " "	8.48	" " " "

The mortality statistics of the last U. S. Census Report, including the year ending June 1st, 1870, show the following figures touching these two States :

Of 100 whites dying in Kentucky,	4.84	died of typhoid fever.
Of 100 negroes " " "	3.95	" " " "

In South Carolina, same year and same authority :

Of 100 whites dying during year,	7.06	died of typhoid fever.
Of 100 negroes " " "	7.61	" " " "

Further observations are requisite to determine this question.

Two cases of typhoid fever were treated in my wards, both resulting in recovery. It is in my power to give a complete and very carefully observed record of temperature, pulse and respiration, in these cases, together with a statement of all medicines prescribed and administered to the patients. This circumstantial analysis of certain symptoms and the whole treatment, will be of interest to those young members of our profession who observed the cases.

Case 1.—David Chambers, age 21 years, by profession a slater, was admitted to ward 20 on the 23d of January. I saw him on the 24th. He was then rather listless and dull; complained of

weakness and slight headache, anorexia, and sensation of feverishness; no disorder of the bowels; patient not confined to his bed. Typhoid fever was suspected, but it was not possible to affirm a diagnosis. Ordered half a teaspoonful of the house solution of quinine every two hours until four teaspoonfuls should be administered.

25th.—At my morning visit found the patient sitting near the stove, conversing with those around him. Diagnosis not yet possible, but the patient asks for more of the house mixture, insisting that it helped him. Ordered ziv. , teaspoonful every third hour.

26th.—No change worthy of note; insists that he is better, but a dull expression of countenance and increase of languor justify a probable diagnosis of typhoid fever. No remedies during the day; zj. of house mixture at bed time.

27th.—Patient in bed, complaining of weakness, feverishness; one loose stool in the latter part of the night; no tenderness, or gurgling upon pressure over abdomen. Ordered tinct. cinchon. comp. zj. , nitro-mur. acid dil. zj. , teaspoonful in sweetened water three times daily; Dover's powder, gr v. , at night. No longer a doubt in regard to diagnosis, and records of temperature, pulse and respiration directed to be made. The following tables will show the variations of temperature, pulse and respirations throughout the case. This record began on the 7th day of the attack, as nearly as could be determined, and terminated on the 46th. It will be seen that for 18 days preceding the close of observations, they were taken in the morning only.

Day of attack.	Tempera- ture.		Pulse.		Respira- tion.		Day of attack.	Tempera- ture.		Pulse.		Respira- tion.	
	M.	E.	M.	E.	M.	E.		M.	E.	M.	E.	M.	E.
7.....	100.5	101.0	80	100	20	24	27.....	99.5 ^o	103.1 ^o	92	120	22	28
8.....	102	102	84	102	26	24	28.....	100	.....	100	.....	39	.....
9.....	101	103.5	86	104	28	32	29.....	103	.....	92	.....	20	.....
10.....	101	103.5	90	100	28	28	30.....	99.8	.....	100	.....	22	.....
11.....	102.5	103	100	100	24	28	31.....	100.5	.....	104	.....	22	.....
12.....	101	102	100	120	24	24	32.....	100	.....	104	.....	24	.....
13.....	100	103	108	120	24	20	33.....	100.6	.....	106	.....	26	.....
14.....	101	103.5	96	120	22	20	34.....	99	.....	104	.....	22	.....
15.....	102	102.5	100	100	22	24	35.....	100.8	.....	115	.....	22	.....
16.....	101	104	84	120	16	20	36.....	99.5	.....	115	.....	22	.....
17.....	100	101.5	108	120	20	20	37.....	100	.....	112	.....	24	.....
18.....	102.6	101.9	108	100	28	24	38.....	102.5	.....	114	.....	36	.....
19.....	101	102.5	108	100	25	28	39.....	100.4	.....	114	.....	20	.....
20.....	99	102	96	100	22	24	40.....	100.5	.....	95	.....	22	.....
21.....	99	104	96	100	26	24	41.....	100.1	.....	110	.....	22	.....
22.....	99.5	103	100	100	26	24	42.....	99.5	.....	110	.....	23	.....
23.....	100	102	98	100	26	32	43.....	99	.....	112	.....	25	.....
24.....	99.5	104	96	100	26	23	44.....	99.3	.....	114	.....	24	.....
25.....	100	103.5	102	100	30	28	45.....	99	.....	105	.....	23	.....
26.....	100.2	101.5	104	100	22	28	46.....	97.5	.....	96	.....	20	.....

28th.—Continue treatment: $\mathfrak{z}\text{ij}$. of house solution of quinine ordered at bed time, as a substitute for the Dover's powder. This was done at the earnest solicitation of the patient, who from the beginning to the conclusion of his case protested that he was better after taking it. [Each $\mathfrak{z}\text{i}$. of this solution contains quinine gr. v., tinct. opium gtt. viiss., dissolved in peppermint water by sulphuric acid.]

29th.—Continue treatment; patient has had two or three stools daily, but no measures have been employed to restrain them, as they do not seem to prejudice his condition.

30th.—Bowels loose; gurgling and some tenderness in right iliac region; tongue becoming red. Ordered tinct. cinchon comp. $\mathfrak{z}\text{ij}$., tinct. opium $\mathfrak{z}\text{j}$. Mix. Teaspoonful every second hour.

31st.—Continue treatment; $\mathfrak{z}\text{j}$. of house solution at bed time, to be repeated at 2. a. m.

February 1st.—Continue treatment.

2d.—Bowels loose and patient feeble; muttering delirium during sleep. Ordered tinct. cinchona comp. $\mathfrak{z}\text{j}$., nitro-muriatic acid, tinct. opium, aa gtt. XL. Mix. Teaspoonful every three hours. This prescription was continued until the 14th of February, the intervals between the doses being varied according to the urgency of the diarrhœa.

14th.—Ordered house solution $\mathfrak{z}\text{vj}$, one drachm three times daily.

15th.—Continue.

16th.—Comp. tinct. cinchon. $\mathfrak{z}\text{ij}$., tinct. opium. $\mathfrak{z}\text{j}$.; teaspoonful three times daily.

19th.—House solution $\mathfrak{z}\text{iv}$.; one drachm every three hours.

21st.—Some cough; pain in left side of the chest; dull percussion at base of left lung: hot cloths and flannel jacket over chest. R—Brown mixture $\mathfrak{z}\text{ij}$., carb. ammonia $\mathfrak{z}\text{ij}$. Mix. Tablespoonful every fourth hour during day. Dover's powder, gr. v., at night.

22d.—Continue treatment.

24th.—Tinct. digitalis $\mathfrak{z}\text{vj}$., syrup morphia $\mathfrak{z}\text{ij}$. Teaspoonful every two to four hours, according to effect.

25th and 26th.—Continue treatment.

27th.—Pul. digitalis gr. vj., pul. ipecac, pul. opium, aa gr. iij. Make six pills; one every fourth hour. No other prescription was made.

Throughout the whole treatment of this case diet was made a point of paramount importance. The patient was carefully nourished with milk, rice and milk, essence of beef, and chicken, with alcoholic drinks as early and often as indicated. Cloths wrung from hot water were placed over the abdomen. No measures were resorted to, to check the diarrhœa, unless it became so profuse as to weaken the patient.

Case 2.—Herbert Thiele, aged 18 years, a resident of this city, was admitted to ward 18, Charity Hospital, on the 12th of February. His friends state that his sickness dates from the 6th. He has had bleeding from the nose, diarrhœa, and some delirium. The diagnosis was positive. The following table shows march of temperature, pulse and respiration, until convalescence was well established.

Day of attack.	Temperature.		Pulse.		Respiration.	
	M.	E.	M.	E.	M.	E.
8.....	102.0°	105.2°	88	100	28	20
9.....	102	104	86	88	28	24
10.....	103	102	88	80	24	20
11.....	102.3	103.1	88	84	24	20
12.....	101.7	100.5	90	88	21	16
13.....	102.3	102	90	92	20	16
14.....	101.4	103.1	86	80	22	24
15.....	100.5	.....	90	....	24	....
16.....	101.2	98	88	78	16	16
17.....	99.2	.....	76	....	20	....
18.....	99.2	.....	85	....	20	....
19.....	98.3	102	80	100	18	20
20.....	99.5	102	92	96	18	16
21.....	100	101.3	80	104	18	20
22.....	101	104	88	100	20	20
23.....	101	102	88	100	16	20
24.....	100	102	92	100	18	24
25.....	100.4	101	94	100	16	16

Treatment.—When the patient was admitted, on the 12th, the assistant house surgeon prescribed ʒij. house solution, to be taken at night.

13th.—Prescription repeated.

14th.—Ordered acid nitro hydrochlor. dil., ʒij.; syrup ipecac. ʒij.; comp. tinct. cinchona, ʒiv.; water, ʒj. Teaspoonful in sweetened water every third hour; ʒj. house solution at night.

15th.—Continue.

16th.—Tinc. cinchon. comp. ʒij. , nitro-mur. acid ʒj. Mix. Teaspoonful three times daily in sweetened water. Dover's powder five grains each night. This treatment was but little varied until the patient's convalescence was well established. He was discharged from the hospital March 6th.

The treatment in both of these cases was symptomatic purely. No efforts were made to control the diarrhæa, unless it was likely to interfere with nutrition or weaken the patient by its profuseness. No attempt was made to abridge the disease by cold packing, quinine, or any other supposed abortifacient treatment. The only measures resorted to lower the excessive temperature, were frequent sponging the surface with tepid water, and a liberal supply of ice and iced drinks. Mercurials were not given to either patient, for the simple reason that I saw no indications for their use. A paramount attention was given to the nutrition and hygiene of the patients. May not this account for the fact, that the former of these was enabled to survive an abnormal temperature extending through a period of more than forty consecutive days?

Yellow Fever. Three cases of this disease were treated in my wards. Two resulted fatally, and one was discharged. They were all admitted during the month of December. All came from the same point—Eadsport—and had a similar history in regard to the quarters in which they slept. The detailed history of the first case will sufficiently develop all important facts connected with their exposure to the contagion.

Case 1.—Peter Galvin, a common laborer, aged 18 years, was admitted to ward 18, on the 6th of December. The history given in regard to him is, that he left St. Louis in the latter part of November and went to the mouth of the Mississippi river, where he had an engagement to work on the jetties. He was employed immediately after arrival in making the willow mattresses used in forming these works. At night he slept with some fifty or sixty laborers in a barge fitted with bunks and tied to one of the wharves. Prior to the illness of these patients, the barge had been driven on the mud during a heavy gale. On Friday, December 3d, he had a slight chill, followed by severe pain in the head, back, and in his legs. He came to the city December 5th, and was admitted on the succeeding day, having walked to

the hospital and up into the ward. The patient was seen immediately after admission, and although there was a degree of suffusion of the countenance, and a puffed, tumid state of the eyelids, which attracted my marked attention, they were referred to catarrh and their serious import misapprehended. He was ordered R—Calomel, comp. extr. colocy., aa gr. v. Make two pills; take immediately; follow in four hours with ℥ss. castor oil. As soon as catharsis is obtained, 3j of house solution every three hours until 3iv. have been taken.

December 7th. Still complains of pain in the head and back, also of slight nausea and some thirst; countenance still tumid and dull in expression; complains of the weight of the hand upon the epigastrium; no stools since Dec. 2d. Ordered castor oil in repeated doses of ℥ss. Having a strong suspicion that this was a case of yellow fever, I obtained some of his urine and tested for albumen; none present.

December 8th.—Patient's bowels well evacuated during the night; condition not improved; seems dull, manifesting but little interest in inquiries, or efforts to examine him; temperature 102°; urine albuminous; diagnosis positive. Ordered broken ice, iced "seltzer water," iced milk in small quantities at short intervals; absolute recumbency; a nurse to remain continually at his bedside.

December 9th.—Worse; nausea and epigastric uneasiness somewhat increased; some jactitation; urine albuminous. Temperature, morning, 104½°; pulse 86; respiration 26; evening temperature 103½°. Ordered

R—Sodæ bicarbonat.,	-	℥ss.;
Aquæ laurocerasi,	-	℥ss.;
Morphiæ sulphat.,	- -	gr. ss.;
Aquæ menth. pip.,	- -	℥iiss.

℥ ft. sol. S. Tablespoonful every two hours until nausea is quieted.

December 10th.—Delirious through the night; nausea; hiccup, and ejection from the stomach of about 3ij. of light yellow fluid, containing brown flocculi at the bottom of the night vessel. No urine since noon of the preceding day. Morning temperature 104°; pulse 90; respiration 24. Evening temperature 104°; pulse 112; respiration 24.

December 11th.—Condition much worse; completely delirious; entire suppression of urinary secretion; black vomit in large quantity; death at 10 o'clock in the night. Post-mortem in presence of the medical class.

Case 2.—Peter Reiley, laborer, aged 22, had been employed in company with Galvin in making mattresses, and had slept in the same quarters. Never had malarial fever. Was attacked suddenly on the 14th of December with a chill, pain in the head, back and limbs. He was admitted to ward 21 on the 18th of December. At time of admission he complained of severe head and backache, tenderness of epigastrium, nausea and vomiting of ingesta, and great restlessness. The face was flushed, eyes red and watery, and conjunctiva injected. Morning temperature 98.1°; pulse 70; evening temperature 98.1°; pulse 80; urine carefully tested, but no albumen present. Prescribed

R—Bicarb. soda, - - ʒss;
 Cherry laurel water, - ʒiv.;
 Sulph. morphia, - gr. ʒ;
 Peppermint water, - ʒiiss.

Mix. Tablespoonful every two hours. Mustard plaster to epigastrium; ice and iced effervescing drinks to be given; milk and milk punch for diet.

December 19th.—Very little change in patient's symptoms. Morning temperature 98.2°; pulse 68; evening temperature 98.6°; pulse 80, more feeble, and disappearing under pressure; no albumen in urine. Treatment continued.

December 20th.—Morning temperature 99.1°; pulse 75; evening temperature 98.2°; pulse 50; urine albuminous; complains of gaseous distension and sense of burning in his stomach; frequent eructation. Prescribed

R—Subnit. bismuth;
 Pul. willow charcoal, aa ʒss;
 Pul. opium, - - - gr. j.

Make six powders: one to be given every three hours, placed upon the tongue and swallowed with a little ice-water.

December 21st.—Morning temperature 98.6°; pulse 75. Evening temperature 98.6°; pulse 60; urine albuminous, and reduced in quantity. Continue treatment.

December 22d.—Patient weaker and very restless. Morning temperature 98.6°; pulse 75; evening temperature 97.2°; pulse irregular, very feeble, not counted; urine scanty, and highly albuminous. Prescribed: R—Bromide potash ʒij., tincture opium gtt. xv., camphor water ʒij. Mix. Tablespoonful every three hours. In the afternoon the patient complained of intense pain in his left arm, which swelled rapidly, and became livid and tense from the shoulder to the wrist. Death occurred during the night, without black vomit or convulsions. No autopsy.

Case 3.—Patrick Roberts, common laborer, aged 40 years, admitted to ward 21 on the 8th of December. Had been working and sleeping in company with the preceding patients; was seized on the 6th of December with chill, cephalalgia and backache. This case was a mild attack of yellow fever; still, it was one in which the diagnosis was positive. The facial flushing, and intense redness and sponginess of the gengival margins and of the conjunctiva, and the epigastric uneasiness were distinctively marked. On the 7th day of the disease, temperature 97.6°; pulse 48. On the ensuing day, temperature 97.4°; pulse 44. Urine without albumen throughout the whole case.

The patient made a very slow convalescence. The presence of two complications produced this result. Firstly, he had been a subject of malarial poisoning, and occasionally chills impeded his recovery. Secondly, he heard of the death of Galvin, and witnessed the death of Reiley, who had been placed upon an adjoining bed, and knowing that they had died of the disease under which he was suffering, the moral shock depressed him to a dangerous degree. He was discharged from the hospital on the 24th of January.

In commenting upon these cases, one of the first points to be mentioned is the season of the year at which they occurred. Yellow fever is not a disease which prevails in the winter in New Orleans. But these patients acquired the germs of the disease in a locality nearly a degree south of the city. Again, the records of temperature taken at the Board of Health office, show that 36 degrees was the lowest figure which the thermometer had marked prior to the occurrence of these attacks. It follows, therefore, that no fall of temperature had taken place, inferentially sufficient to destroy the germs of yellow fever. The assumption is justifiable that they contracted yellow fever at Eadsport, and in all likelihood the germs were in some manner preserved, or nursed into renewed activity, by favorable conditions on board the barge where they slept. Many facts are on record which prove that yellow fever poison is capable of preservation for quite a long period of time. It is the opinion of many observers, and one in which I fully concur, that cases of yellow fever occurring out of season are more to be dreaded than those attacked during an epidemic visitation. Perhaps it may not be susceptible of proof that the rate of mortality of these sporadic cases is largely increased over that of epidemics, but it is certainly true that they are more prone to run irregular

careers and thus place the physician in fault regarding diagnosis, prognosis and treatment. The quiet manner in which the yellow fever poison sometimes produces death is a curious characteristic of the disease. Indeed, no greater surprise could be prepared for a physician brought for the first time in its presence, than to observe a case as devoid of violent symptoms as that of Reiley. It would prove difficult to make him believe that a morbid force as resistless as the tornado, could work its fatal ends so covertly and silently.

The swelling of the arm noted to have occurred in Reiley's case, was undoubtedly due to arrest of circulation by coagulated blood. I think it was in the autumn of 1868 that I witnessed a similar event, but connected with an approach to convalescence. The patient ultimately died and post-mortem examination by Prof. Chaillé, showed a thrombus occupying the axillary vein and perhaps a portion of the subclavian. There were also many points of purulent accumulation dispersed through the lungs, probably due to embolism. Yellow fever affords certainly two of the physiological causes of thrombus: blood alterations and slowing of the circulation. It is more than likely that the last mentioned is the predominating factor in its production. Slowness and feebleness of the heart's action are well known characteristics of yellow fever.

In relation to treatment, these cases afford nothing new or especially instructive. I am opposed to the perturbing treatment of this disease, but if favoring it ever so strongly, all these cases had passed the period of its applicability when admitted to the hospital. A yellow fever case in its incipency, will endure an amount of therapeusis which would give a fatal turn to the scale of life, if applied later in its progress. This statement becomes in measure more strictly true, as the drugs applied are more strongly contraindicated. Perhaps those practitioners who attempt as it were, to pommel yellow fever into submission by violent medication, may take some comfort from the reflection that they do a less amount of harm, if they confine the use of their remedies to the formative stage of the disease. I suppose that a physician loyal to his profession and of course a believer in the optimism of the plan of creation, must of necessity hold that every poison has its antidote. But however true such a hypothesis may be, the antidote to yellow fever remains yet to be discovered. Neither do we understand the mode or channels of its elimination from the system. We therefore find those measures the wisest, which

simply seek to preserve the life of the patient until the storm has passed over. If we nourish the patient, preserving as nearly as possible a physiological state of his functions, and keeping him free from disturbing influences, either physical or moral, we discharge our principal duties. The treatment ought to be inaugurated with a laxative, if costive bowels so indicate, and they generally do. Castor oil is the most manageable and inoffensive in its action. Some good practitioners are very partial to a purgative dose of calomel: I never resort to it unless there is too much irritability of the stomach to expect the retention of other cathartics. Mustard baths to the feet and legs are comforting to patients and seem to be beneficial principally in promoting perspiration. The cooling and ameliorating effects of perspiration are well understood, indeed, one of the most common errors of practice is in concentrating all efforts of cure, in the one measure of stimulating the sweat glands. Hot drinks, hot baths, hot blankets and close rooms are occasionally made the means both of torture and of hastening a fatal result. It is much better, after reaction is well established to keep the patient comfortably cool, giving him cold drinks, in small quantities, but often repeated, and sponging the surface with warm or tepid water. Cephalalgia, or lumbar pain may be somewhat alleviated by ammoniated lotions, or sometimes better by a heated flannel over the part. Apyretic treatment beyond cold and acidulated drinks, is seldom demanded. That quinine acts as an apyretic in yellow fever is a proposition verified by many observations. To insure its effects in this direction the doses should not be less than ten grains. In a majority of cases in which it is exhibited during the neuralgias special to the disease, it exerts some mitigating influence over the pain. During the forming stage of yellow fever it often happens that perspirations appear and disappear in fitful periods; quinine seems to steady the nerve supply governing this function, so that sweating is more equable and lasting under its influence. Why, then, shall we not prescribe it oftener than we do in treating yellow fever? The answer is rational and decided. It does not cure the disease, nor does it, according to my experience, even shorten its course, although some excellent physicians have attributed to it some merit as an abortive remedy. It does in a certain proportion of cases increase gastric irritation and irritability, and in another proportion, probably smaller however, its physiological effects are sources of nerve disturbance, especially insomnia. The

charge brought against it in the former clause of the last sentence is quite enough to decide the physician experienced in yellow fever practice, to refrain from its use by way of the stomach, at all events, unless some paramount considerations determine him to take the risk. Gastric irritability is so often a source of defeat and mortification to the physician that it is always a lion in his path. Even if vomiting or retching is absent, the disquietude of the stomach reveals itself by some manifestation or other, which seems to say to the medical attendant, "touch me if you dare." Not only does this fact worry the physician in regard to his medication, but it renders the question of nutrition a difficult problem to solve. I have often seen emesis followed by black vomit under circumstances which compelled me to believe that they stood in the relation of cause and effect. Several years ago, a patient well advanced in convalescence, obtained furtively an orange and an apple, and ate them both on the 13th day of his attack. He died on the ensuing day, with black vomit preceding death. If such an event is liable to occur late in the progress of a case running a previously favorable course, how necessary it must be to protect the stomach from all sources of irritation during the stadium of the disease. Alimentation for the first three or four days of a simple case, should be almost nil, and the little which is permitted should be in such a fluid and bland state of preparation that simple percolation through the gastro-intestinal walls would be the only function put upon these structures. As the case progresses a gradual change may be effected to solid food. The end of two weeks of satisfactory progress is considered by many observers, quite soon enough to permit a beefsteak or chop.

My thanks are due to Mr. L. Szabary, Student of Medicine at Charity Hospital, for the careful manner in which he has preserved the records of the cases mentioned.

Eruptive Fevers—Rubeola. One case was treated. Edward Moore, a newsboy, aged 16 years, was admitted February 11th. Stated that he had suffered with high fever and catarrhal symptoms for four days, or since the 6th. At the time of admission, the eruption was well marked upon his face and neck. No remedies were given except bitartrate potash in flaxseed lemonade, and an occasional dessertspoonful of "brown mixture." He was discharged from the hospital on the 17th of February. The fol-

lowing table affords a faithful exhibit of temperature, pulse and respiration, throughout the case.

Day of attack.	Temperature.		Pulse.		Respiration.	
	M.	E.	M.	E.	M.	E.
5.....	101.2°	104.2°	104	120	40	40
6.....	100.1	100.5	100	90	32	32
7.....	99.5	99.6	88	90	32	24
8.....	98.8	99.1	68	70	34	20
9.....	98.5	98.4	68	64	24	24
10.....	98	99	66	66	26	24
11.....	98.6	....	68	....	16	..

